



New Bedford Inner Harbor Embayment System

Total Maximum Daily Loads for Total Nitrogen

Fact Sheet

Introduction

The Massachusetts Department of Environmental Protection (MassDEP) is responsible for monitoring the waters of the Commonwealth, identifying those waters that are impaired, and developing a plan to bring them back into compliance with the Massachusetts Surface Water Quality Standards. MassDEP is then required by the federal Clean Water Act (CWA) to develop a Total Maximum Daily Load (TMDL) to restore the health of impaired waterbodies.

Waterbodies

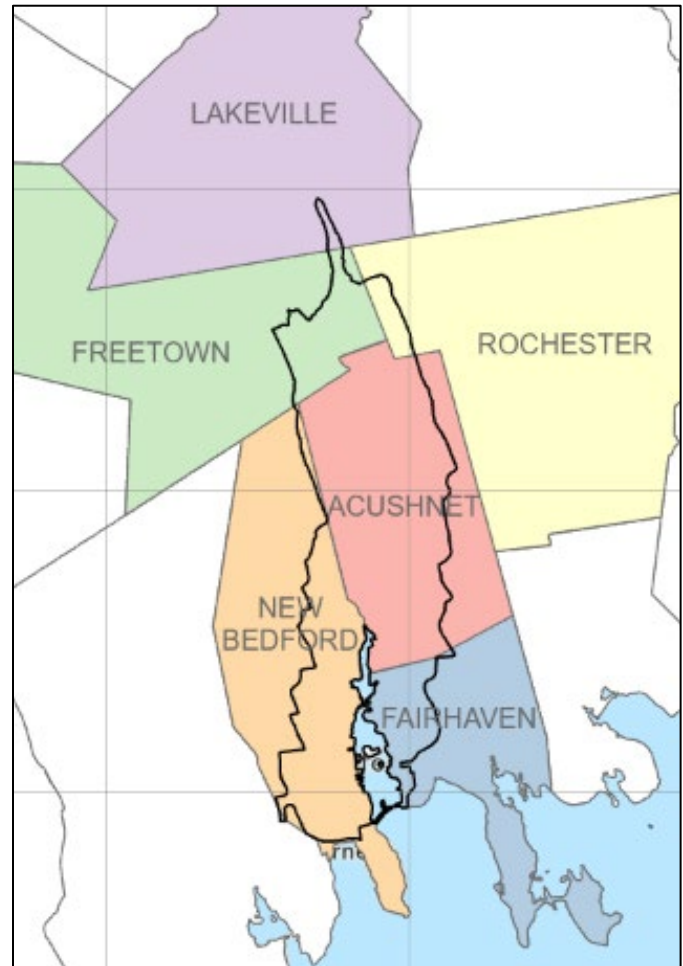
The New Bedford Inner Harbor Embayment System is located along the western coastline of Buzzards Bay. The Acushnet River flowing seaward from the Towns of Lakeville and Freetown in the upper portions of the Acushnet River watershed provides steady freshwater flow to the headwaters of New Bedford Harbor, which is the estuarine reach of the Acushnet River. The estuary can be partitioned into an upper (north of the constriction at Rt. 195), middle (the constriction at Rt. 195 to the area of the harbor constricted by Popes, Fish, and Crow Islands) and the lower region (the island constriction down to the Hurricane Barrier).

Nitrogen Loading

Excessive nitrogen (N) originating from a range of sources has impaired the New Bedford Inner Harbor Embayment System. In general, excessive N in these waters are indicated by periodic algae blooms, undesirable increases in macroalgae, periodic decreases in dissolved oxygen concentrations that threaten aquatic life, and reductions in the diversity of benthic animal populations.

The N loading that is considered controllable affecting this system originates primarily from the following sources:

- Fairhaven Wastewater Pollution Control Facility (WPCF) (47%)
- Septic Systems (20%)
- Fertilizers (13%)
- Combined Sewer Overflows (CSOs) (9%),
- Impervious Surfaces (7%)
- Farm Animals (4%)



New Bedford Inner Harbor Embayment System Watershed

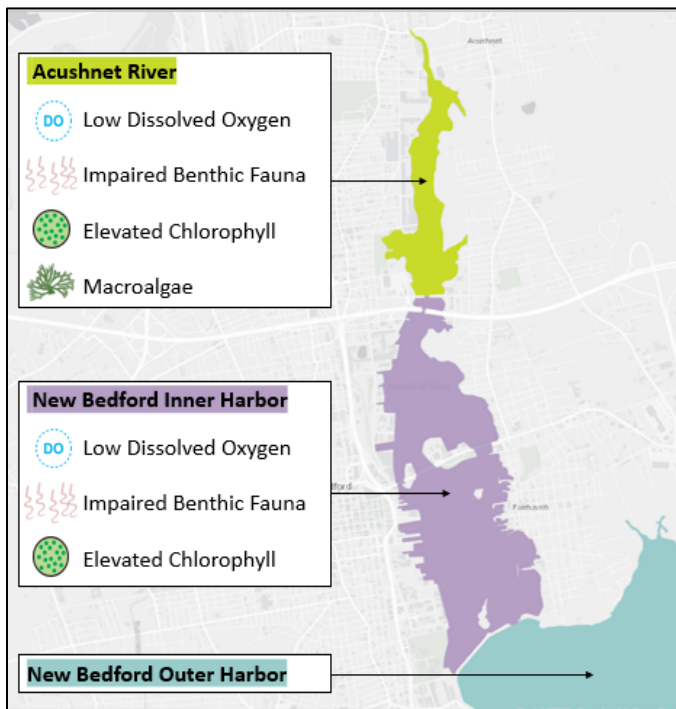
Municipalities

The New Bedford Inner Harbor watershed area includes six municipalities in order of watershed area:

- Acushnet (50%)
- New Bedford (27%)
- Freetown (11%)
- Fairhaven (9%)
- Rochester (3%)
- Lakeville (1%)

TMDL Summary

MassDEP seeks to reduce Total Nitrogen (TN) loads to estuaries in southeastern Massachusetts as part of the Massachusetts Estuaries Project (MEP). The TN target concentration established in the draft TMDL report is based on the primary goal of restoring and protecting the benthic habitat in the entire system. A linked model was used to quantify the local controllable TN loading from sources and establish a TN concentration target of **0.50 mg/L** at a sentinel station located in the middle of New Bedford Inner Harbor. Based on sampling and modeling analysis, a nearly 50% reduction of the overall TN load is required to meet concentration targets.



New Bedford Inner Harbor Impairment Summary

Implementation

The goal of the TMDL implementation is to lower N concentrations in the New Bedford Inner Harbor Embayment System. The TMDL report includes the load reductions necessary to achieve the threshold N concentrations. 47% of the controllable nitrogen is from Fairhaven Wastewater Pollution Control Facility (WPCF). EPA and MassDEP applied the analysis from the draft TMDL to the current Fairhaven WPCF NPDES discharge permit, including a 2017 permit limit for TN of 57 kg/day (equivalent to 3 mg/L TN at design capacity). Reductions from additional sources (fertilizers, combined sewer overflows [CSOs], impervious surfaces and agriculture) are necessary to meet the TN target.

The communities located within the New Bedford Inner Harbor Embayment System watershed are encouraged to evaluate other load reduction scenarios and take any reasonable steps to reduce the controllable N sources. Local officials can explore other load reduction scenarios through additional modeling as part of their Comprehensive Wastewater Management Plan (CWMP).

Public Participation

An information session to present the results of this TMDL report was held on November 8, 2023. Public comments received during the meeting and comments received in writing within a 30-day comment period following the meeting were considered by the Department. The final version of the TMDL report includes a summary of the public comments, the Department's response to the comments, and attendance records from the virtual meeting and physical meeting room.

U.S. EPA Approval

The U.S. EPA approved the TMDL on June 4, 2024.